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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

LUND, JEFFRIE ROBERT

ART UNIT PAPER NUMBER

1763

DATE MAILED: 11/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/762,706

Applicant(s)

BASCERI ET AL.

Examiner

Jeffrie R. Lund

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 August 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19,22-29 and 32-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 19,22-29 and 32-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 August 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 8/4/05.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 19, 22-29, and 32-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Umotoy et al, US Patent 6,086,677, in view of Jeong, US Patent 5,853,484, and Mosely et al, 6,071,572.

Umotoy et al teaches a deposition chamber that includes: a first line 124 coupled to a first source chemical 116 and communicates with a plurality of first holes 1308 in a shower head 130, and a second line 126 coupled to a first source chemical 118 and communicates with a plurality of first holes 1306 in a shower head 130. (Entire document)

Umotoy et al differs from the present invention in that Umotoy et al does not teach first and second piezoelectric flow regulators proximate to each of the first and second holes, that the flow regulators are capable of vaporizing the first or second source, or a controller coupled to the regulators.

Jeong teaches a gas control system that includes a gas line 16-1 through 16-n connected to a single hole 34-1 through 34-p and each line containing a valve 32-1 through 32-n. A controller 22 is connected to each of the flow controllers 32 and can control them independently or in unison. (Entire

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document) The controllers are capable of vaporizing a liquid source by flash vaporization in which a liquid is flowed through the controllers and then flash to vapor caused by the flow rate, pressure drop, and temperature increase.

Mosely et al teaches using piezoelectric valves 19, 34, and 44 to control the flow of gases into the showerhead. (Figure 1, column 3 lines 39-65

The motivation for providing the gas controller of Jeong for the first and second source chemicals of Umotoy et al is to provide a required gas flow control system as required by Umotoy et al but only generically described, and to enable the control of each hole as taught by Jeong to allow the flow rates to be optimized in each hole thereby improving the uniformity of the layer coated.

The motivation for making the metering valves of Jeong piezoelectric is to provide a specific type of valve and enable precise control of the amount of precursor flowing from each hole. The use of piezoelectric valves is well known in the art.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to add gas flow control system of Jeong with the piezoelectric valves of Mosely et al to each of the first and second source chemicals of Umotoy et al.

Response to Arguments

3. Applicant's arguments with respect to claims 19, 22-29, and 32-38 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to

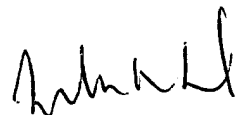
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applicant's disclosure. The cited art teaches the technological background of the invention.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrie R. Lund whose telephone number is (571) 272-1437. The examiner can normally be reached on Monday-Thursday (6:30 am-6:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571) 272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jeffrie R. Lund
Primary Examiner
Art Unit 1763

JRL
10/29/05